

REMARKS

In the amendments above, Claims 1-6, 12-20, 22, and 25-30 have been amended, Claim 30 has been cancelled, and Claim 31 has been added, to more particularly point out and distinctly claim Applicants' invention. Support for new Claim 31 can be found, for example, at Claims 1 and 11.

Applicants thank the Examiner for the courtesy of a telephonic interview with the Examiner, as well as Examiner Glen Kao, on April 17, 2007, to discuss the above application, the Office Action dated January 19, 2007, Tsutsui et al., U.S. Patent No. 4,928,297 ("Tsutsui"), and proposed amendments to the claims. In particular, Applicants' undersigned attorney pointed out the distinctions between Tsutsui and the present invention and proposed amendments to the claims to emphasize those distinctions. The results of said telephonic interview are essentially summarized in an Examiner Interview Summary form dated April 17, 2007, which form is of record herein.

In the Office Action, Claims 6, 14, 22, 23, and 29 were rejected under 35 U.S.C. § 112, second paragraph. The Examiner's attention is directed to the amendments above, which are believed to overcome this rejection.

Claims 1-3, 5-14, and 16-29 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Tsutsui. The Examiner maintains that each limitation of these claims is described by Tsutsui.

Claims 15 and 30 have been rejected under 35 U.S.C. 103(a) as being obvious over Tsutsui in view of Francke et al., U.S. Published Patent Application No. 2003/0174806 ("Francke"). The Examiner maintains that it would be obvious to one skilled in the art to incorporate the compression paddles described by Francke into the apparatus and method of Tsutsui to reduce distortion and improve image quality.

Applicants respectfully traverse the above rejections.

As was pointed out to the Examiner during the above-mentioned telephonic interview, and has been mentioned previously, for example, in an Amendment dated November 6, 2006, incorporated herein by reference, the invention herein is directed to a particular imaging procedure, namely, mammography. Tsutsui is directed to a general x-ray imaging technology used in hospitals, etc., for taking radiographs of various parts of anatomy, whereas the current invention concerns the very specialized imaging modality of mammography.

There are a number of differences between the procedures taught by Tsutsui and the claimed invention, including, but not limited to, the following:

(1) According to the embodiments of Figures 5-7 of Tsutsui, the radiation source (and its focal spot) move along a curved path about a fixed point 5, whereas according to the invention claimed herein, the radiation source (and its focal spot) is essentially motionless in space during imaging;

(2) According to the invention, the sensor array moves in substantially linear trajectory, whereas embodiments of Figures 5 and 7 of Tsutsui teach that a sensor array will move along a curved path at the end of a pendulum-type shaft 11; and

(3) While the Examiner has been insisting that Figure 4 of Tsutsui would teach some kind of scanning movement according to the claimed invention, in fact Figure 4 as such does not actually refer to any kind of scan but just shows how the shape of the x-ray beam changes depending on certain mutual positions of the x-ray source, the collimation slit, and the sensor array.

Thus, Tsutsui fails to disclose the combination of moving the sensor or sensors in a linear trajectory and keeping the active surface of the sensor or sensors at right angles to the beam from the x-ray source while at the same time keeping the focus of the radiation

source essentially motionless in space. None of the embodiments of Tsutsui show the combination of these features, nor is there any teaching in Tsutsui to suggest that these features be combined.

Furthermore, there is no indication in Tsutsui that its teachings could be implemented in mammography. It should be appreciated that mammography is a technology designed specifically for imaging breasts, and it is clear that one simply just could not take Tsutsui's imaging technique and start irradiating women's breasts. For starters, none of Tsutsui's techniques or methods teaches any such collimation of the x-ray beam together with positioning of the object to be imaged that would not, in the case of mammography, either cause irradiation of also other anatomies of the patient than just the breast (which would not be acceptable because of radiation hygiene requirements) or leave a portion of the breast tissue out of the field of image (which kind of imaging would not make much sense to begin with).

The Examiner's attention is directed to the amendments above, which substantially correspond to the proposed amendments to the claims discussed with the Examiner during the telephonic interview. It is earnestly believed that the amendments herein and the discussion above effectively highlight the distinctions over Tsutsui.

As shown above, Tsutsui does not teach all of the elements of the claimed invention. Accordingly, independent Claims 1 and 16 are patentable over Tsutsui. For at least the reason of their dependence from Claims 1 and 16, either directly or indirectly, Claims 2-14, 17-29, and 31 should be considered patentable over Tsutsui as well.

With regard to Claims 15 and 30 (Claim 30 having been cancelled above), the Examiner used Francke as a secondary reference with regard to teaching compression paddles. Further, Applicants respectfully refer to the deficiencies of Tsutsui discussed above and also point out that there is nothing disclosed in Tsutsui regarding using compression paddles, which is understandable as Tsutui does not even disclose any kind

of concrete imaging apparatus to begin with but just discusses imaging methods and techniques. Thus, based on the teachings of Tsutsui, there is no actual imaging device with which Franke's compression paddles could be imagined to be incorporated, in the first place, and such an imaging apparatus would first have to be invented.

It should also be appreciated that Francke does not even discuss scanning imaging in the sense Tsutsui does. The basic idea of Francke is to use a plurality of one-dimensional sensors, and the distance of any scanning movement there may well be on the order of millimeters, not over the whole width of the object to be imaged. The basic imaging techniques discussed by Tsutsui and Francke are distinct, and no motivation can be seen for a man skilled in the art of mammography to combine teachings of Francke's imaging apparatus to the imaging techniques taught by Tsutsui, which, as discussed above, cannot be used – without fundamental modifications at least - for mammography imaging in the first place. As Tsutsui does not disclose any structure whereto compression plates might be installed even, no direct combination of Francke to Tsutsui can arrive at the current invention. Therefore, and especially in view of the amendments made herein, any rejection of the currently pending claims under § 103(a) is without foundation and, consequently, the current rejection of Claim 15 under § 103(a) should be withdrawn.

In view of the amendments to the claims made herein and the arguments presented above, it is submitted that the Examiner's rejections have been overcome and should be withdrawn. The application should now be in condition for allowance.

Should any changes to the claims and/or specification be deemed necessary to place the application in condition for allowance, the Examiner is respectfully requested to contact the undersigned to discuss the same.

Reconsideration and allowance are respectfully requested.

Respectfully submitted,

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